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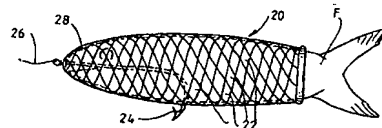
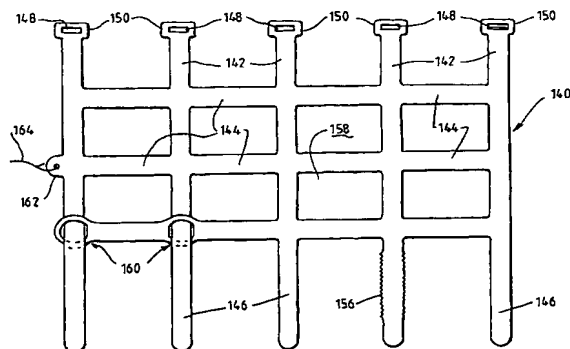
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(54) Title: BAIT HOLDING SYSTEM



(57) Abstract: A bait holding apparatus (20, 140) includes a deformable receptacle (20, 140) into which the bait (F) can be placed such that the receptacle (20, 140) can deform around the bait (F). A plurality of apertures (22, 158) are defined in the receptacle (20, 140) such that, when the bait (F) is placed therein, the predator can sense the bait (F) via the apertures (22, 158). The apparatus (20, 140) can have a shape that enables it to surround the bait (F) in a close-facing relationship. Alternatively, the apparatus (140) can be a plurality of interconnected ties (142). A method for forming the apparatus (20) includes the steps of dipping a mandrel into molten material for the sleeve; removing the mandrel and allowing the sleeve to solidify around the mandrel; forming a plurality of apertures in the sleeve, either whilst on the mandrel, or once removed therefrom.

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## BAIT HOLDING SYSTEM

### Field of the Invention

5           The present invention relates to a bait holding system developed primarily, though not exclusively, for holding and optionally reinforcing, storing or housing bait for use in fishing and related pursuits. However, the system can also be applied in other applications where bait is employed, such as hunting, trapping etc.

### Background to the Invention

10           In both commercial and recreational fishing, bait disintegration can be a problem where the bait is subjected to successive hits, grabs or strikes, or where the bait is suspended in water for considerable periods of time.

15           In deep-sea fishing for large fish, such as billfish (including marlin), it is known to use "teasers" to attract the fish into the vicinity of a fishing vessel. Artificial teasers only work if the fish visually sights the teasers and therefore natural teasers have been employed because of the fish-attracting aroma and scent they release in addition to appearance. Where natural teasers are used, again the problem of disintegration  
20           becomes an issue.

          It is known to reinforce natural teasers, such as whole fish (eg. slimy mackerel), by wrapping or stitching the bait with thread. However, the preparation of each teaser is very time consuming, often taking from 10 to 30 minutes and, where multiple teasers are used, this can involve significant preparation time and delays.

25           In non-water based applications of bait, such as with hunting or trapping, baits are often used to lure predators, which may be game or pests. Again, baits can disintegrate when left out in the environment for some time, or when subjected to successive nibbling, biting or feeding by a predator. They may also disintegrate without, for example, the associated trap being activated.

30           Mesh bags for surrounding bait on a fishing hook are known in the art. Examples are shown in US4839982, US6427260, NZ241883, GB2310782, WO96/28021 and DE3439735. Whilst these apparatus can also act as teasers, because fish-attracting aroma and scent can be released therefrom, the apparatus are not designed to enhance visual attraction, in that they retain essentially a bag shape once  
35           bait has been inserted therein.

### Summary of the Invention

In a first aspect the present invention provides a bait holding apparatus  
5 including:

- a deformable receptacle into which the bait can be placed such that the receptacle can deform around the bait; and
- a plurality of apertures defined in the receptacle such that, when the bait is placed therein, a predator can sense the bait via the apertures.

10 Employment of a deformable receptacle enables the apparatus to assume the shape of the bait. This is advantageous where the bait is a whole small animal, such as a small baitfish or rodent, as a predator can still recognise the animal shape. However, where the bait is fragments such as chopped up bait, the receptacle can be shaped to simulate a whole small animal, and the bait can then be urged therein such that the  
15 receptacle still deforms around the bait, and assumes the shape of the small animal.

Advantageously, the apparatus of the present invention provides a receptacle which deforms around the exterior of the bait to contain it, whilst also enabling it to be rapidly and easily reinforced. In addition, the employment of a plurality of apertures allows the predators to more easily sense the bait, and optionally access it.

20 Preferably the receptacle is a sleeve into which the bait can be inserted. The employment of a sleeve is extremely convenient because of its ease of use. Preferably the sleeve is elongate, being closed at one end and having a reinforced opening at the opposite end through which the bait can be introduced into the sleeve (via insertion at the opening). This arrangement provides for a rapid deployment of the bait.

25 Preferably the apertures are a plurality of holes formed in the sleeve to define a generally perforated or grid-like formation around the bait in use. This maximises the exposure of the bait whilst still reinforcing it, and enables its taste, aroma, scent, shape and visual qualities to be preserved.

30 Preferably the sleeve closed end is adapted for providing a line attachment point thereto. Thus, the reinforcing apparatus can be attached to a connecting line such as a fishing line, so that it may be reused. In land-based applications the apparatus can be connected to a safety line.

35 Optionally, hooks or other fastening mechanisms can be associated with the apparatus so that it can function not only as an attractor, but also as a captive mechanism. Other attractor accessories can also be associated with the sleeve such as coloured nose cones, side flippers and fins, beaks, noses etc.

The sleeve-closed end can be provided with an aerodynamic profile to enhance

movement of the apparatus through a fluid such as water.

In an alternative arrangement, the receptacle can be a plurality of deformable rings in series, with each ring connected to a next adjacent ring by one or more connecting members. Preferably in this regard the bait is inserted to extend through each of the rings in series, with preferably two connecting members maintaining the rings in spaced relation to each other and preventing, for example, their displacement too far from each other, thereby maintaining the integrity of the apparatus.

Typically the receptacle is formed from an elastomeric material having shape memory, such as a polymeric rubber. In this regard, the material may also be impregnated with colourings and other attractor features such as reflective material fragments including metal fragments etc.

In a second aspect the present invention provides a method for forming a bait holding apparatus where the receptacle is a sleeve as defined in the first aspect, including the steps of:

- dipping a mandrel into molten material for the sleeve;
- removing the mandrel and allowing the sleeve to solidify around the mandrel;
- forming a plurality of apertures in the sleeve whilst on the mandrel or once removed therefrom.

The closed end of the sleeve can be defined at the free end of the mandrel and can be additionally formed to take appropriate shapes and receive attachments as described above.

The opposite open end of the sleeve can be formed around the mandrel, for example, by being folded or rolled over prior to complete solidification, to define a reinforcement around the open end, thus allowing for repeated insertion of bait thereinto without tearing of the sleeve.

Preferably the apertures are formed in the sleeve by pressing, punching or cutting. The apertures may also be formed by appropriate protrusions defined on the mandrel.

In a third aspect the present invention provides a method for forming an apparatus as defined in the first aspect where the receptacle includes a plurality of deformable rings, including the steps of:

- arranging a sheet of deformable material on a substrate; and
- forming in and then removing from the sheet a plurality of adjacent but non-overlapping rings, such that at least one connecting member extends between adjacent rings.

Advantageously in the third aspect the apparatus can be formed using a single pressing, punching or cutting motion, thus providing for rapid apparatus manufacture.

Alternatively, the rings and connecting member(s) can be moulded.

Preferably two connecting members are defined to extend between adjacent rings, one being tangential to an upper part of each ring and the other being tangential to a lower part of each ring.

5 In a fourth aspect, the present invention provides a bait holding apparatus formed from a material having a plurality of apertures therethrough that has a shape that enables it to be positioned to surround the bait in a close facing relationship, in a manner that tends to preserve the structural integrity of the bait.

10 In the fourth aspect, the material can be the deformable receptacle as defined in the first, second and third aspects. However, the material can also be a metallic mesh receptacle (eg. a perforated or apertured stainless steel mesh bag including eg. wire mesh) that is shaped for positioning in a close facing relationship to the bait (especially a whole bait). Alternatively, the material can be in the form of ties or tapes (eg. an adhesive tape) having apertures therethrough and which can be wrapped around the bait  
15 in the close facing relationship.

The ties or tapes can be arranged in a grid formation for wrapping around the bait, the grid defining the apertures therethrough with free ends of the ties or tapes being fastened altogether to define the receptacle.

20 In a fifth aspect the present invention provides a bait holding apparatus including:

- a receptacle in which the bait can be held and including an opening through which the bait can be introduced into the receptacle; and
- a closure for the receptacle opening and about which the receptacle can be releasably attached to close the opening.

25 Advantageously the fifth aspect of the invention provides a rapid and secure closing system. The closure may also provide a supporting substrate for the attachment of lines and/or hooks to the apparatus (e.g. when used in fishing).

30 Preferably the closure has one or more passages extending therethrough such that fluid can flow from the apparatus exterior and into the receptacle interior. For example, when used in water, water may be caused to flow through the passages). Advantageously, when the receptacle is porous or apertured, fluid can flow right through the apparatus, especially where a line is attached to the closure and the closure is pulled through water. This would cause water to flow through the apparatus via the passages, then through the pores/apertures of a receptacle. This has particular  
35 advantages in fishing as described below.

Preferably the closure is a bung having a peripheral recess defined at one end thereof into which a skirt portion of the receptacle opening can be releasably fastened.

In this regard, the skirt portion can be retained in the recess by a tie or ring extending circumferentially therearound (e.g. a polymeric O-ring).

Optionally, attractor devices can be associated with the closure, and these can include filaments attached thereto and which extend away therefrom when the apparatus is dragged through water. Such attractor devices can also include apparatus colouring,

imaging such as eyes, reflectors, reflective material dispersed through the closure etc. The receptacle of the fifth aspect may also be as defined in the first and fourth aspects, or manufactured using a method according to the second aspect.

In a sixth aspect the present invention provides a bait holding apparatus including:

- a receptacle in which the bait can be held and including an opening through which the bait can be introduced into the receptacle; and
- a closure for the receptacle opening and having one or more passages extending therethrough such that fluid can flow from the apparatus exterior and into the receptacle interior.

A flow of fluid, such as water, through the apparatus can enhance/increase the release of aroma, scent and bait particles to the environment to attract predators.

The receptacle of the sixth aspect may also be as defined in the first, fourth or fifth aspects, and typically the closure is as defined in the fifth aspect.

In a seventh aspect the present invention provides a bait holding apparatus including a plurality of ties, each tie connected to one or two adjacent ties and each having a fastening mechanism associated with opposite ends thereof such that each tie can be wrapped around the bait and then fastened at or near its ends.

Such a system provides an alternative to inserting the bait into a receptacle, such as a sleeve, and provides a rapid means for reinforcing a bait.

Preferably each tie is connected to one or two adjacent ties by one or more transversally extending ties, to define a tie grid. In this regard, each transversally extending tie can be insertable through a respective slot in each of the plurality of ties, providing adjustability to the overall grid formation. Also, preferably each transversally extending tie is interferingly receivable in its respective slot in each of the plurality of ties, thus providing dimensional stability to the tie grid.

The fastening mechanism can be embodied as:

- free tie ends that can be tied together to fasten the apparatus to the bait; or
- a slotted head at one tie end and a free end at the other end that is receivable interferingly through the slot of its head to fasten the apparatus to the bait.

Preferably sides of the other tie free end, or of each transversally extending tie, are serrated. This facilitates their interfering receipt within respective slots.

Each tie can be provided in the form of a flat tape-like member, or can be a member which is generally circular in cross-section. Each tie may also be formed from an elastomeric material.

5 In an eighth aspect the present invention provides an applicator for a bait holding apparatus that includes a deformable opening to a receptacle, the applicator being suitable for apparatus as defined in the first, fourth, fifth, sixth or seventh aspects, the applicator including a receptacle insertion end adapted for insertion into an opening of the receptacle to deformably open the same to facilitate bait insertion, a bait guiding surface extending from the insertion end and over which the bait can be moved, with the  
10 surface extending towards an applicator remote end for protruding beyond the receptacle when the applicator is inserted therein to facilitate applicator handling by a user.

This applicator further enhances the use of bait holding apparatus in accordance with the present invention, easing and speeding up the insertion of bait into the  
15 apparatus.

Preferably the applicator is generally flat and, in plan view, gradually tapers from a relatively wider remote end to a relatively narrower insertion end, with the bait guiding surface being defined on either side of the applicator. Alternatively the bait guiding surface can be concave.

20 Preferably one or more guide channels are provided on the bait guiding surface to facilitate guidance of the bait towards and in through the receptacle opening.

Optionally one or more finger holes are provided at the remote end to facilitate user handling of the applicator.

## 25 **Brief Description of the Drawings**

Notwithstanding any other forms which may fall within the scope of the present invention, preferred forms of the invention will now be described, by way of example only, with reference to the accompanying drawings in which:

30 Figure 1 shows a perspective view of a first bait holding apparatus in accordance with the present invention;

Figure 2 shows a side elevation of an alternative apparatus to that shown in Figure 1, with a bait inserted therein;

35 Figure 3 shows a similar view to Figure 1, but with a closed end of the apparatus being modified for line attachment and for water movement;

Figure 4 shows a similar view to Figure 2, but with a closed end of the apparatus being again modified for line attachment and for predator attraction;

Figure 5 shows an apparatus similar to that of Figure 2, but modified with an attractor element attached thereto;

Figure 6 shows a plan elevation of an alternative bait holding apparatus;

Figure 7 shows a side elevation of the apparatus of Figure 6 when fitted to a  
5 bait;

Figure 8 shows a side elevation of a further alternative bait holding apparatus when fitted to a bait;

Figure 9 shows a side elevation of an extruded elastomeric mesh material suitable for use with various apparatus according to the present invention;

10 Figures 10 to 12 show side elevations of further alternative bait holding apparatus according to the present invention;

Figures 13 to 15 show plan elevations of bait tying apparatus in accordance with the present invention;

15 Figure 16 shows a plan elevation of a further alternative bait tying apparatus in accordance with the present invention; and

Figures 17 and 18 show plan elevations of two alternative bait applicator devices in accordance with the present invention.

### **Modes for Carrying out the Invention**

20 Referring firstly to Figure 1, a bait holding apparatus is shown in the form of an elongate sock sleeve 10. The sock sleeve has a closed end 12 and an opposite open end 14. A plurality of apertures in the form of holes 16 are defined in the sock sleeve as shown.

25 The open end is typically reinforced by a circumferential back-fold or roll 18 of the sleeve 10. This allows for repeated insertion and removal of bait to and from the sleeve (eg. using an applicator as shown in Figures 17 and 18), without the sleeve deteriorating at that end (eg. by tearing). The closed end may also be reinforced, for example, by being of increased thickness (as specified during moulding) to prevent the  
30 bait from being pushed out at that end during insertion, and optionally to allow for line and hook attachment etc.

Typically the sock sleeve is formed from an elastomeric material having shape memory, such as an elastomeric polymer (eg. a natural or synthetic rubber such as latex, an ABS rubber etc). Thus, when a bait is inserted therein, the sleeve can expand and  
35 deform around the bait, thereby holding and reinforcing it and also providing structural integrity to the bait. The deformability of the sleeve also enables it to assume the general external shape of the bait, and this can be advantageous in visually attracting a



predator.

Typically the sock sleeve 10 is formed by dipping an elongate mandrel into an elastomeric liquid polymer or monomer solution, allowing a skin to form around the mandrel, withdrawing the mandrel from the solution and allowing excess polymer to  
5 drip back into the solution. The polymer typically air cures on the external surface of the mandrel, and thereafter the sleeve can be slipped off the mandrel. The holes 16 can be formed eg. by pressing, cutting or punching either whilst the sleeve is on the mandrel, or once it has been removed. Alternatively, protrusions can be provided on the mandrel which define the holes.

10 The open end of the sleeve is typically reinforced by folding or rolling that part of the sleeve at the open end circumferentially therearound to define a reinforcing section. This folding or rolling back is typically performed prior to complete curing of the end so that the folded back section fastens to the underlying sleeve.

Typically in use in an expanded orientation, the holes 16 are dilated, thereby  
15 providing a greater access to the bait held therewithin. Thus, bait fragments, bait aroma and smell, and bait visualisation can be provided to a predator (eg. to a larger fish such as a billfish). The apertures may also be of sufficient size for the predator to at least partially feed or nibble through the apertures thus further attracting them to the bait.

Typically the sock sleeve also has a shape approximating the bait prior to bait  
20 insertion. For example, the sock sleeve may have the general shape of a small fish.

Referring now to Figure 2, a second sock sleeve 20 is shown with a bait such as a small fish F inserted therein. This sleeve is typically formed in a similar way to sock sleeve 10, but in this case the apertures are defined as diamond-shaped holes 22 through the sleeve, defining a grid-like formation of the sleeve around the fish. This exposes a  
25 greater proportion of the fish. However, in some applications a stronger sleeve material may be required and/or the user may need to be more careful when inserting bait into this sleeve. As shown, a hook 24 and line 26 can extend through and/or be mounted at closed end 28 of sleeve 20. Thus the apparatus can also function as a lure, snare or trap for the predator.

30 Figure 3 shows a similar view to Figure 1, but in this case the front (closed end) 30 of the sock sleeve is modified. In this embodiment the closed end is formed to define a bill 31 through which holes 32,34 can be defined. The bill can have an aerodynamic profile to facilitate movement of the apparatus through air (when casting) and in water. This profile can also be shaped to cause an oscillating movement when  
35 the apparatus is moved through water, similar to a small fish swimming.

The leading hole 32 can have a line 36 attached thereto (such as a fishing line). The trailing hole 34 can have a connecting line 38 inserted therethrough, eg. for

connecting that sleeve to another (optionally identical) adjacent sleeve. In this way, a plurality of sleeves can be joined together, where for example multiple teasers are required (such as with game and commercial fishing). A hook 39 can also or optionally be connected to bill 31 or to a line extending from hole 34 as shown.

5           Figure 4 shows a sleeve similar to Figure 2, but in this case the closed end 28 has a nose cone 40 formed thereat or adhesively fastened thereto. Again, the nose cone can have a hole 42 defined therethrough for connection to a line 44. The nose cone typically has a reflective outer surface, such as a coating with a reflective paint, or may even have a reflective material (eg. metallic material) dispersed therethrough. Such  
10           arrangements function to visually attract predators.

          Figure 5 shows a similar sleeve to Figure 2, but in this case the sleeve has an artificial fin 50 attached thereto, to simulate the fin of a small fish, thereby acting as an attractor to a predator. In this regard, multiple fins can be mounted to the sleeve. Also, the fins can be fabricated from or include reflective or luminescent material to further  
15           attract a predator fish.

          The apparatus of Figures 1 to 5 can also be fabricated from a non-deformable material, such as a perforated or apertured metal (eg. a stainless steel mesh having corrosion resistance). The advantage of using apertured metallic material such as mesh is that the life of the apparatus is increased.

20           In this case the mesh is shaped to be closely positioned to the bait (eg. a small fish) or has a small animal shape. In this regard, the non-deformable material is sized and then positioned to be in a close-facing relationship with the bait (eg. a small fish, rodent, piece of meat etc.) such that it preserves the structural integrity thereof whilst still acting as an attractor.

25           Referring now to Figures 6 and 7, an alternative embodiment of a bait holding apparatus is depicted. In this embodiment, a plurality of rings 60 are formed from a deformable elastomeric material and are joined together by opposite parallel linking members 62. The rings can be stretched around a fish F as shown in Figure 7, and are held in place and prevented from spreading further apart by the linking members 62. At  
30           least one and typically two linking members 62 are employed.

          The embodiment of Figure 6 can be cut or pressed from a flat sheet of elastomeric material, and the rings then twisted into orientation when mounting the apparatus on a fish. Alternatively, the apparatus can be moulded (eg. in a die) using injection moulding etc.

35           Referring now to Figure 8, a further alternative bait holding apparatus is depicted. In this case, the apparatus is formed from an apertured tape 80, typically having an adhesive on one side thereof. Tape 80 has a plurality of apertures 82

therethrough. The tape can be deformable in the sense that it can be formed from a polymer having elastic deformation and shape memory. Alternatively, the tape can be relatively inflexible. In any case, the tape is positionable around the bait in a close facing relationship that enhances the structural integrity thereof and/or that reinforces the bait.

Referring now to Figure 9, an apertured mesh 90 suitable for use with various apparatus according to the present invention is depicted. This mesh is typically polymeric or elastomeric, and is extruded as a continuous tubular length. The mesh can be cut and shaped as appropriate (e.g. to assume the external shape of the bait). The mesh can be used for forming the embodiments of Figures 2, 4 and 5. Alternatively, it can be closed at one end and releasably attached to a closure at the opposite end for use in a system as described, for example, in Figure 10. Alternatively, the end opposite to the closure can be left open, as depicted in Figure 12.

Referring now to Figure 10, an alternative bait holding apparatus in accordance with the invention is depicted. In this embodiment, a receptacle in the form of elongate tubular bag 92 has an open end 94, and an opposing closed end 96. The bag can include a plurality of perforations, pores or apertures (as described above for the previous embodiments). However, in this embodiment a series of holes 98 are provided only at the closed end 96 as shown. The open end 94, which may be in the form of a circumferential skirt generally tapering inwardly, can be releasably mounted on a closure or bung in the form of a plug 100. The plug 100 has a circumferential recess 102 defined around one end thereof, into which the open end 94 can be received for releasable fastening therein. In this regard, an elastomeric O-ring 104, or a pull tie 106, can be positioned to surround the open end 94 when located in recess 102 and fasten it therein, to prevent its removal in use. The ring 104 can also be integrally formed with bag 92.

It will also be seen that the plug 100 has a plurality of passages 108 extending therethrough, and through which a fluid, such as water (or even a gas) can pass, to then flow into the interior of bag 92.

A central bore 110 is also defined through plug 100 and through which a line 112 (such as a fishing line) can be inserted. The fishing line can be provided with an appropriate stopper 114 (eg. a knot or tag) to prevent it from being pulled through bore 110. The line can also continue through the bag 92, such that the opposite end thereof passes out through one of the holes 98, for attachment to a fishing hook 116 or the like.

Optionally, a plurality of predator attracting filaments 118 (e.g. formed from a reflective material) can be fastened at one end between the O-ring 104 and the bag open end 94, or can be attached to the plug 100 itself.

In use of the apparatus of Figure 10, a user reels in line 112, causing the apparatus to traverse through water. This causes the filaments 118 to flail in the water, thereby potentially attracting predators. Also, the water passes into the bag 92 interior via passages 108, and flows through the bag in a turbulent manner (e.g. as indicated by flow arrows F). Eventually, the water passes out of the bag closed end 96 via holes 98 as indicated.

When bait is located in the bag 92, the flow of water thereover entrains aroma, scent and particulate bait matter, acting as a further attractor to predators. This release can also occur when the bag is entirely perforated or apertured. One advantage of arrangement of Figure 10, however, is that the outflow of water from the bag passes near hook 116 and a predator can thus be attracted to that end with the result that it can become hooked or snared at that end.

Thus, the apparatus of Figure 10 can function as a lure. In addition, the filaments 118 can disguise the hook and the appearance of the bag, tricking the predator into believing that the apparatus is a live creature (eg. a squid or octopus). In this regard the plug 100 can also be styled aerodynamically and/or to have the shape of the head of a creature.

Again, the bag 92 can be shaped to have the outline of a whole animal bait. Advantageously, bait can be rapidly added to or removed from bag 92, simply by detaching the ring 104 or tie 106, thereby opening the bag end 94 and allowing rapid insertion of bait therein. Bait positionable in bag 92 can include whole bait, bait pieces or fragments, and even sponge material (e.g. artificial or natural sponge) soaked in fish oil, blood or other predatory attractor substance.

Referring now to Figure 11, where like reference numerals are used to denote similar or like parts, the bag 92 can be replaced with a sleeve 120, not dissimilar to sock sleeve 10 of Figure 1. In this embodiment, a hook 122 can also extend directly from plug 100 (e.g. being moulded such that its shank 124 is fastened therein). The sleeve 120 can have a plurality of apertures 126 formed therein for enabling bait held in the sleeve to be sensed by a predator. The sleeve also has a profile such that a whole live fish bait can be positioned therein, with the sleeve deforming around the fish bait or closely assuming its shape.

Referring now to the Figure 12, where like reference numerals are used to denote similar or like parts, the sleeve 120 can be replaced with a mesh sleeve 128 (e.g. using the mesh 90 of Figure 9, or a mesh similar to that shown in Figures 2, 4 and 5). In this embodiment, the tail T of fish F protrudes out beyond the open end 130 of the mesh sleeve, and a plurality of filaments 118 are attached to that open end. In addition, the design of a fish eye 132 has been printed or painted on plug 100, to further act as a

predator attractor. This embodiment is in other respects similar to those described above.

Referring now to Figures 13 through to 15, where like reference numerals are used to denote similar or like parts, an alternative bait holder apparatus is shown in the form of tie grid system 140. The tie grid system includes a plurality of ties 142, which are connected to adjacent ties by transverse tie elements 144.

Each tie element has a free end 146, which can be inserted through the slot 148 of a head 150 located at the opposite tie end. Typically in this regard each free end is interferingly received in its respective slot (e.g. where transverse serrations 152 on free end 146 engage with protrusions 154 within the slot 148). However, the interfering fit can be via friction, via a push-fit, or via the engagement of side serrations 156 (see Figure 14) with side walls of the slot 148.

In use of the tie grid system 140, a whole bait is typically positioned longitudinally across the system 140 (i.e. generally parallel to the tie elements 144), and then the opposite ends 146, 150 of the ties 142 are wrapped around the whole bait. Free end 146 is then inserted through its respective slot and pulled tightly, binding the tie around the bait. This is repeated for each tie, until the bait is fastened therearound along its length by the system 140. Once so fastened, it will be seen that spaces 158 between adjacent ties 142 and tie elements 144 define apertures in the assembled configuration, which release bait scent, aroma, fragments etc and also enable a predator to nibble at the bait.

Referring now specifically to Figure 14, it will be seen that instead of being integral with the ties 142, the tie elements can be joined to the ties via loops 160, through which the ties extend, and in which they can be interferingly received. An end tie can also be provided with a line loop 162 to which a line 164 can be attached, thus enabling the tie grid system to be dragged through water or fastened at a location, when wrapped around a bait.

As shown in Figure 14A, instead of having a rectangular head 150, a rounded head 166 that is integral with the remainder of the tie 142 can be provided. The remaining features are as described above for Figure 13.

Referring now specifically to Figure 15, the tie grid system 140 can comprise a plurality of criss-crossing ties 142. In this embodiment, the ties can be joined to each other via tie slots 168. This joining can be facilitated by side serrations 156 shown in detail in Figure 15A. Figure 15B shows an alternative tie 142 wherein tie loops 170 are employed instead of tie slots.

The system of Figure 15 can be wrapped around a bait in two directions, for example, where the bait is generally square or circular, such as a bait piece, rather than

an elongate piece such as a whole bait (e.g. fish or rodent). The operation of the system of Figure 15 is in other respects as described above for Figures 13 and 14.

Referring now to Figure 16, an alternative mesh tie system 172 is depicted. In this embodiment, a mesh 174 has a plurality of loose end ties 176 extending from  
5 opposite ends thereof. In a similar manner to the embodiments of Figures 13 to 15, the mesh can be wrapped around the bait, however, then the opposite end ties can be tied together by hand, or may be wound around each other (e.g. when formed from wire) and/or optionally seal fastened therearound. The loose end ties can also be replaced  
10 with ties similar to those used in the embodiments of Figures 13 to 15 (i.e. ties that extend out from the mesh).

Typically the loose end ties and the mesh are formed from a deformable elastomeric polymeric material, generally having a circular cross section, to provide strength and ease of use.

Referring now to Figures 17 and 18, where like reference numerals are used to  
15 denote similar or like parts, bait applicators 180 and 182 are depicted. The bait applicator 182 in Figure 18 is wider than the bait applicator 180 in Figure 17, but its principles of operation is identical, and its construction is similar. The bait applicators can be used to insert bait into any of the apparatus depicted in Figures 1 to 5 and 9 to 12. Indeed, in Figure 17 the applicator is shown inserted into a mesh sleeve 184,  
20 similar to that shown in Figure 2.

Each bait applicator has a relatively narrower insertion end 186, and an opposing relatively wider grip end 188. Each applicator has a generally planar surface 190 (typically on either side of the applicator) and extending between the insertion end and the grip end. However, the surface 190 can also be concave to further assist bait  
25 insertion, the concave surface defining an elongate channel extending between the insertion end 186 and grip end 188.

The surface 190 can be provided with channels 192, defined by ribs 194 that extend longitudinally from the grip end to the insertion end. The channels facilitate the easy sliding of a bait, such as a whole fish F (as shown in Figure 17) across the  
30 applicator surface, helping to guide it towards the insertion end.

The grip end of each applicator is provided with a finger hole 196 to aid in user handling of the applicator, especially during applicator insertion and then bait insertion. Using the finger hole 196 the applicator can also be hung on a hook for storage.

In use, the applicator is inserted into the open end 198 of mesh sleeve 184, and  
35 the tapering sides 200 of the applicator eventually engage the open end 198 and cause it to expand or dilate. A bait (e.g. fish F) can then be placed on surface 190 and be slid along the applicator, riding in channels 192 as guided by ribs 194. The fish F then

passes in through the expanded open end 198 of the mesh sleeve, and eventually the desired length of insertion of the bait is achieved. The bait and mesh sleeve can then be gripped with one hand with the applicator withdrawn by the opposite hand (e.g. as facilitated by the user inserting their finger through hole 196).

5           The applicator enhances the baiting of the various sleeves described above. The applicator can be provided with a plurality of finger holes 196 as appropriate. The applicator may take other shapes as appropriate, provided that it opens the bait insertion end of the receptacle into which it is to be inserted, and provides a guiding surface for inserting the base into the receptacle. Typically the applicator is injection moulded  
10 from a plastics material.

          The apparatus described above can readily be modified to accommodate different bait types, including other sea creatures (such as prawns and mussels), rodents such as rats and mice for land-base hunting and trapping, and even portions or slabs of raw meat, burley, bread and meal etc. The reinforced bait can be used to attach a wide  
15 range of predators including fish, shark, feral animals such as wild dog, cat, pigs etc.; pests such as excessive kangaroo populations; bear etc.

          A number of advantages follow on from the embodiments as described herein. These include:

- The apparatus helps keep a fish bait, or other baiting substance, in one piece during  
20 extended use.
- The apparatus significantly decreases the time required to house or reinforce a bait, such as a fish bait.
- A deformable apparatus can be easily and rapidly positioned on and removed from a bait to which it is attached, also making it available for reuse.
- 25 • The apparatus can be made from a transparent material such that its presence is more difficult to detect by a predator, or it may be made from or have dispersed therethrough a predator attractor material, such as a reflective or luminescent material.
- Various attachments can be formed on the apparatus, including bills, cones, fins,  
30 hooks etc.
- The apparatus can be used for fishing, hunting, trapping etc.
- The apparatus can be used in trawling, trolling, game fishing, beach fishing, boat fishing, rock fishing etc.
- Various hooking systems can be incorporated into the apparatus.
- 35 • The apparatus can also prevent bait from coming off a hook.
- The apparatus can preserve the natural look and shape of the bait to which it is attached.

- When used on fish or other whole animal bait, the apparatus holds the skin intact, even where it is subjected to nibbling or biting.
- Natural secretions from the bait in the apparatus are released through the apertures, acting as a natural attractant for a predator.

5           Whilst the invention has been described with reference to a number of preferred embodiments, it should be appreciated that the invention can be embodied in many other forms.



**Claims**

1. A bait holding apparatus including:
  - a deformable receptacle into which the bait can be placed such that the  
5       receptacle can deform around the bait; and
  - a plurality of apertures defined in the receptacle such that, when the bait is  
placed therein, the predator can sense the bait via the apertures.
2. Apparatus as claim in claim 1 wherein the receptacle is a sleeve into which the  
bait can be inserted.
- 10   3. Apparatus as claimed in claim 2 wherein the sleeve is elongate, being closed at  
one end and having a reinforced opening at the opposite end through which the  
bait can be introduced into the sleeve.
4. Apparatus as claimed in claim 2 or claim 3 wherein the apertures are a plurality  
of holes formed in the sleeve to define a perforated or grid-like formation  
15       around the bait in use.
5. Apparatus as claimed in claim 3 wherein the sleeve closed end is adapted to  
provide a line attachment point thereto and optionally has an aerodynamic  
profile to enhance movement of the apparatus through a fluid such as water.
6. Apparatus as claimed in claim 1 wherein the receptacle is a plurality of  
20       deformable rings in series, with each ring connected to a next adjacent ring by  
one or more connecting members.
7. Apparatus as claimed in claim 6 wherein the bait is inserted to extend through  
each of the rings in series, with two connecting members maintaining the rings  
in spaced relation to each other.
- 25   8. Apparatus as claimed in any one of the preceding claims wherein the receptacle  
is formed from an elastomeric material having shape memory.
9. A bait holding apparatus substantially as herein described with reference to the  
accompanying drawings.
10. A method for forming an apparatus as defined in any one of claims 2 to 5  
30       including the steps of:
  - dipping a mandrel into molten material for the sleeve;
  - removing the mandrel and allowing the sleeve to solidify around the  
mandrel;
  - forming a plurality of apertures in the sleeve, either whilst on the mandrel, or  
35       once removed therefrom.
11. A method as claimed in claim 10 wherein the apertures are formed in the sleeve  
by pressing, punching or cutting.

12. A method for forming an apparatus as defined in claims 6 or 7 including the steps of:
- arranging a sheet of deformable material on a substrate;
  - forming in and then removing from the sheet a plurality of adjacent but non-overlapping rings, and such that at least one connecting member extends between adjacent rings.
13. A method as claimed in claim 12 wherein the rings and connecting member(s) are formed by pressing, punching or cutting the sheet.
14. A method as claimed in claim 12 or 13 wherein two connecting members are defined to extend between adjacent rings, one being tangential to an upper part of each ring and the other being tangential to a lower part of each ring.
15. A method for forming a bait holding apparatus substantially as herein described with reference to the accompanying drawings.
16. A bait holding apparatus formed from a material having a plurality of apertures therethrough that has a shape that enables it to be positioned to surround the bait in a close-facing relationship, in a manner that tends to preserve the structural integrity of the bait.
17. Apparatus as claimed in claim 16 wherein the material is the deformable receptacle as defined in any one of claims 1 to 9.
18. Apparatus as claimed in claim 16 wherein the material is a metallic mesh receptacle such as a perforated or apertured stainless steel mesh.
19. Apparatus as claimed in claim 16 wherein the material is one or more ties or tapes having apertures therethrough and which can be wrapped around the bait in the close-facing relationship.
20. Apparatus as claimed in claim 19 wherein the ties or tapes are arranged in a grid formation for wrapping around the bait, the grid defining the apertures therethrough, with free ends of the ties or tapes being fastenable together to define the receptacle.
21. A bait holding apparatus including:
- a receptacle in which the bait can be held and including an opening through which the bait can be introduced into the receptacle; and
  - a closure for the receptacle opening and about which the receptacle can be releasably attached to close the opening.
22. Apparatus as claimed in claim 21 wherein the closure has one or more passages extending therethrough such that fluid can flow from the apparatus exterior and into the receptacle interior.
23. Apparatus as claimed in claim 21 or claim 22 wherein the closure is a bung

having a peripheral recess defined at one end thereof into which a skirt portion of the receptacle opening can be releasably fastened.

24. Apparatus as claimed in claim 23 wherein the skirt portion is retained in the recess by a tie or ring extending circumferentially therearound.

5 25. Apparatus as claimed in any one of claims 21 to 24 including an attractor device associated with the closure.

26. Apparatus as claimed in claim 25 wherein the attractor device includes filaments attached to the closure, colouring of the closure, reflective material at or dispersed through the closure, or shaping of the closure.

10 27. Apparatus as claimed in any one of claims 21 to 26 wherein the receptacle is as defined in any one of claims 1 to 9 or 18.

28. A bait holding apparatus including:

- a receptacle in which the bait can be held and including an opening through which the bait can be introduced into the receptacle; and
- 15 - a closure for the receptacle opening and having one or more passages extending therethrough such that fluid can flow from the apparatus exterior and into the receptacle interior.

29. Apparatus as claimed in claim 28 wherein the receptacle is defined in any one of claims 1 to 9, 18 or 21.

20 30. Apparatus as claimed in claim 28 or 29 wherein the closure is as defined in any one of claims 21 to 26.

31. A bait holding apparatus including a plurality of ties, each tie connected to one or two adjacent ties and each having a fastening mechanism associated with opposite ends thereof such that each tie can be wrapped around the bait and  
25 fastened at or near its ends.

32. Apparatus as claimed in claim 31 wherein each tie is connected to one or two adjacent ties by one or more transversally extending ties to define a tie grid.

33. Apparatus as claimed in claim 32 wherein each transversally extending tie is insertable through a respective slot in each of the plurality of ties.

30 34. Apparatus as claimed in claim 33 wherein each transversally extending tie is interferingly receivable in its respective slot in each of the plurality of ties.

35. Apparatus as claimed in any one of claims 31 to 34 wherein the fastening mechanism is:

- free tie ends that can be tied together to fasten the apparatus to the bait; or
- 35 - a slotted head at one tie end and a free end at the other tie end that is receivable interferingly through the slot of its head to fasten the apparatus to the bait.

36. Apparatus as claimed in any one of claims 33 to 35 wherein sides of the other tie

free end, or of each transversally extending tie, are serrated.

37. Apparatus as claimed in any one of claims 31 to 36 wherein each tie is a flat tape-like member, or is generally circular in cross-section.

5 38. Apparatus as claimed in any one of claims 31 to 37 wherein each tie is formed from an elastomeric material.

39. An applicator for a bait holding apparatus that includes a deformable opening to a receptacle, and suitable for an apparatus as defined in any one of claims 1 to 9, 16, 17 or 19 to 38, the applicator including a receptacle insertion end adapted for insertion into an opening of the receptacle to deformably open the same to  
10 facilitate bait insertion, a bait guiding surface extending from the insertion end and over which the bait can be moved, with the bait guiding surface extending towards an applicator remote end for protruding beyond the receptacle when the applicator is inserted therein to facilitate applicator handling by a user.

15 40. An applicator as claimed in claim 39 that is generally flat and, in plan view, that gradually tapers from a relatively wider remote end to a relatively narrower insertion end, with the bait guiding surface being defined on either side of the applicator.

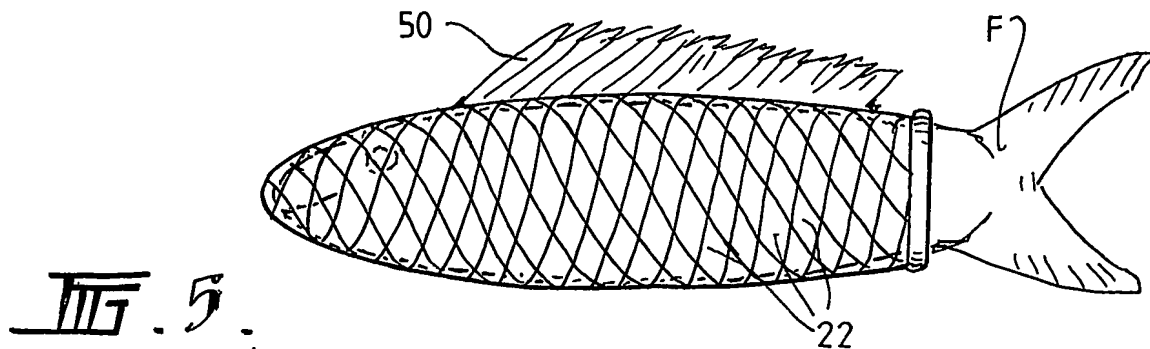
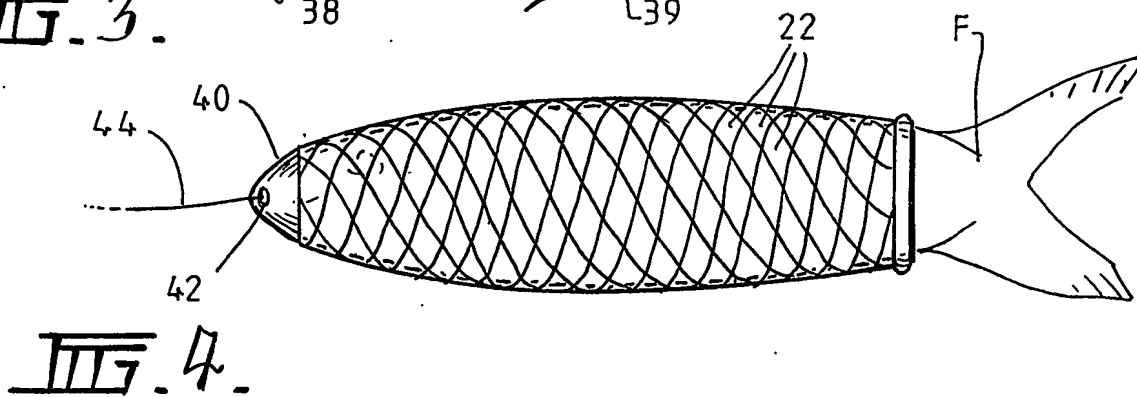
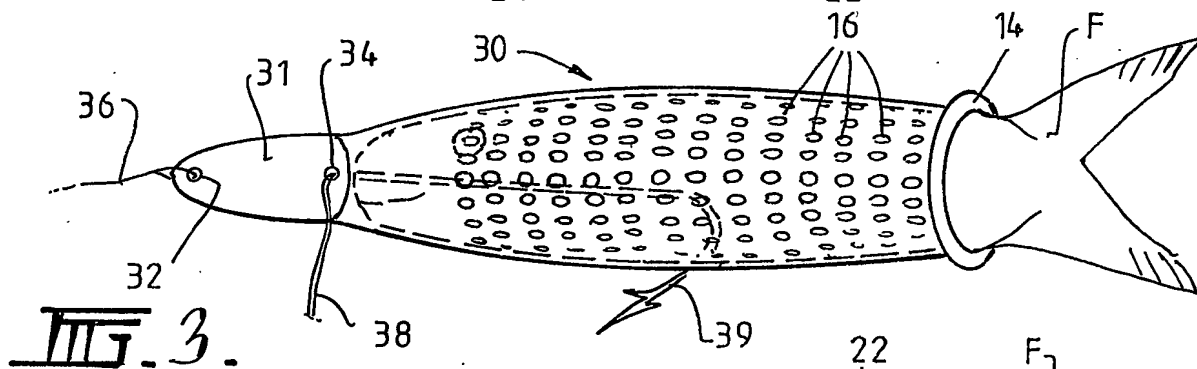
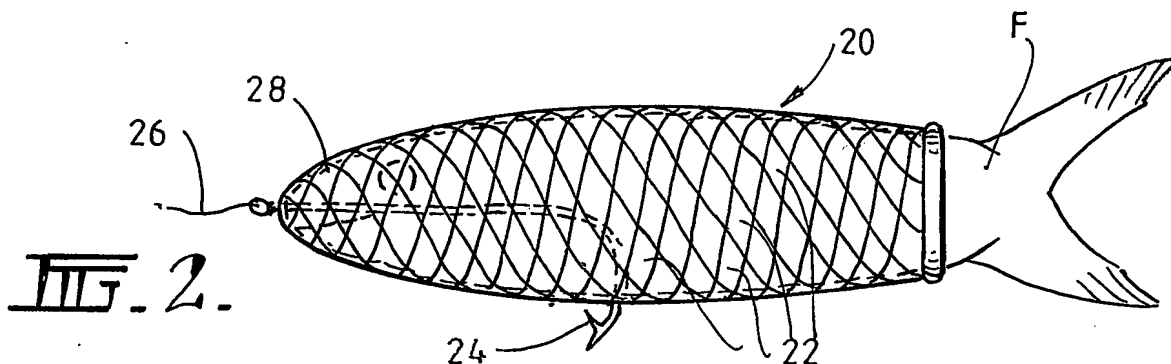
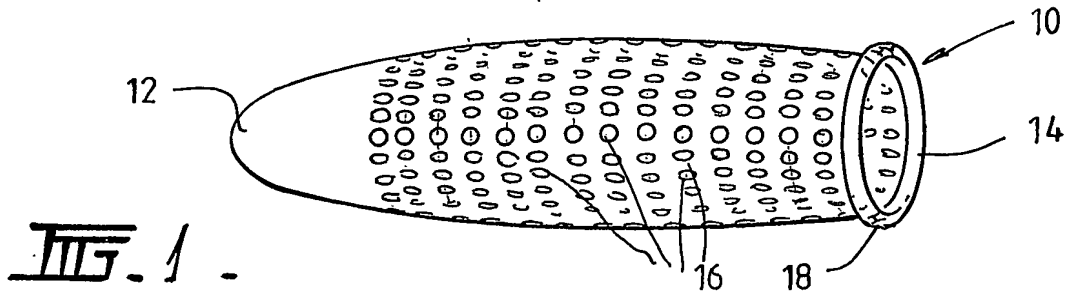
41. An applicator as claimed in claim 39 or 40 wherein one or more guide channels are provided on the bait guiding surface to facilitate guidance of the bait towards and in through the receptacle opening.  
20

42. An applicator as claimed in any one of claims 39 to 41 wherein one or more finger holes are provided at the remote end to facilitate user handling of the applicator.

25 43. An applicator as claimed in any one of the claims 39 to 42 that has a concave guiding surface, defining an elongate channel extending between the insertion and remote ends.

44. An applicator for a bait holding apparatus substantially herein described with reference to Figures 17 and 18 of the accompanying drawings.

1/8



2/8

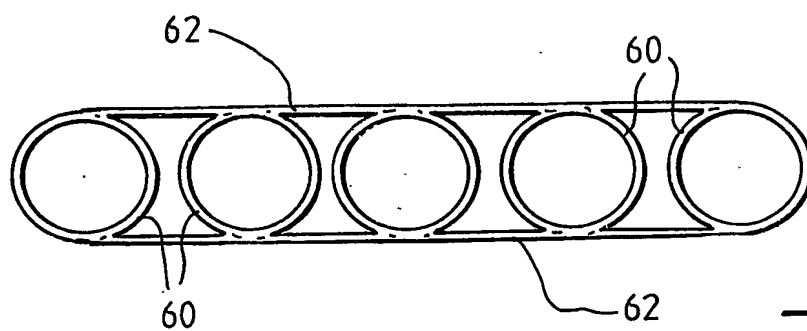


FIG. 6.

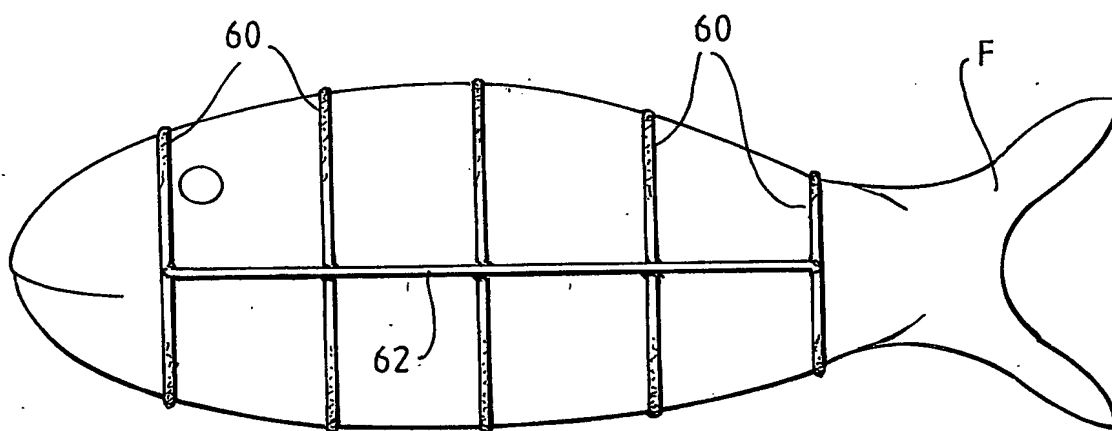


FIG. 7.

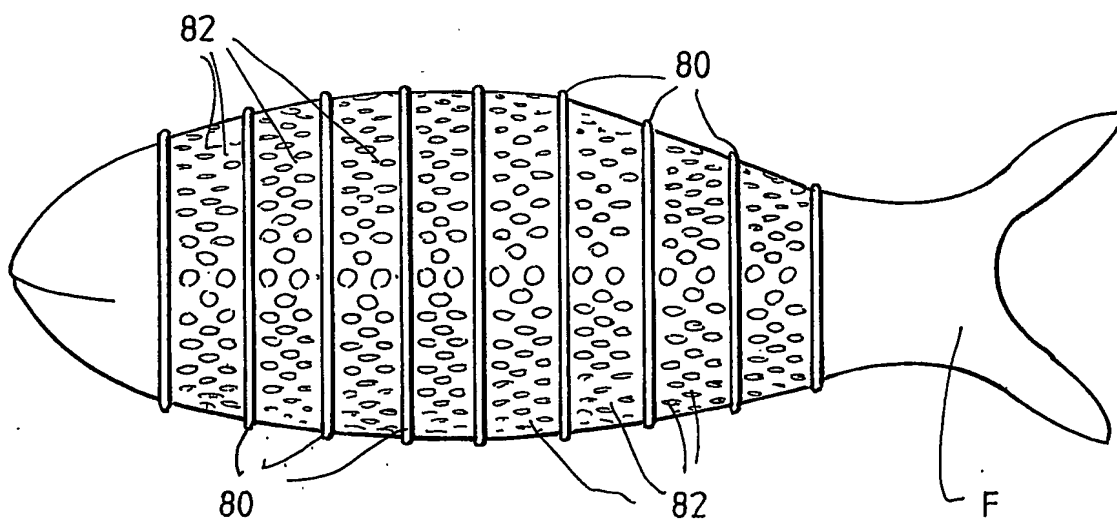
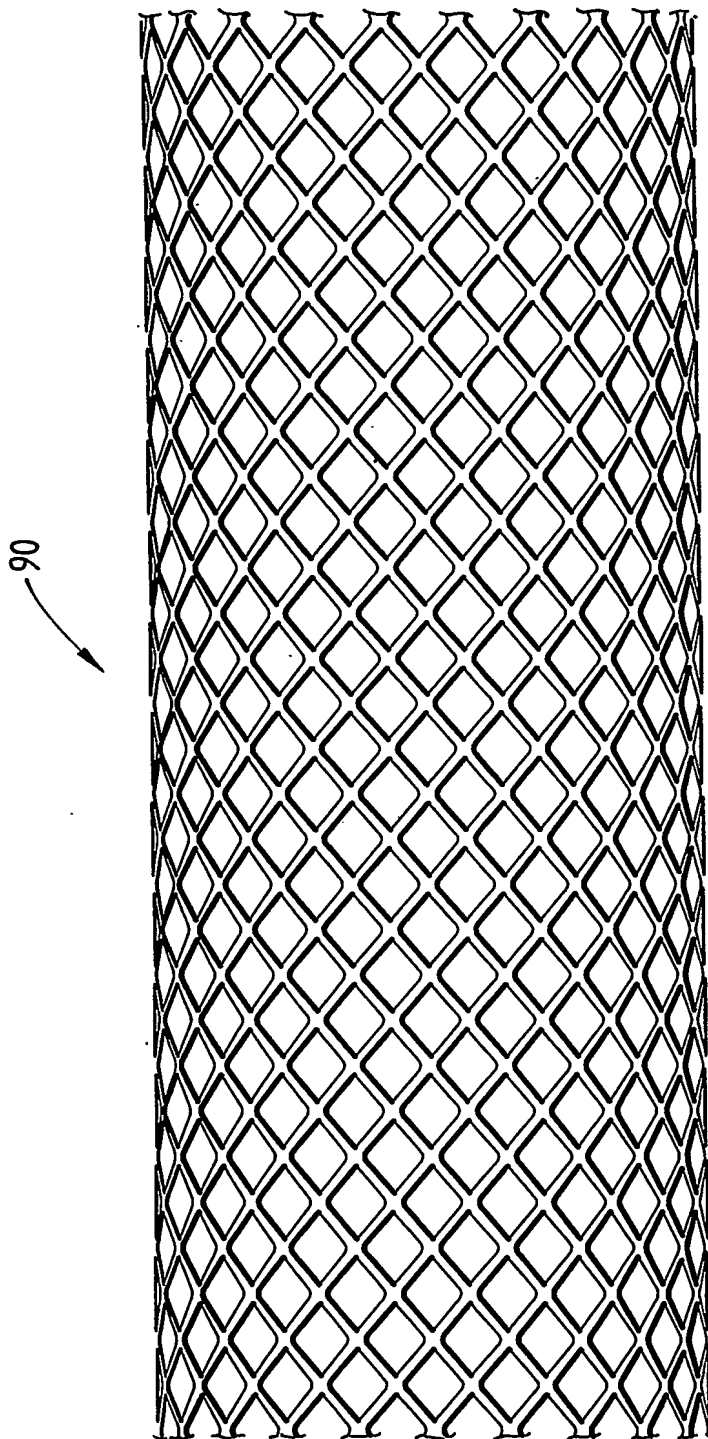


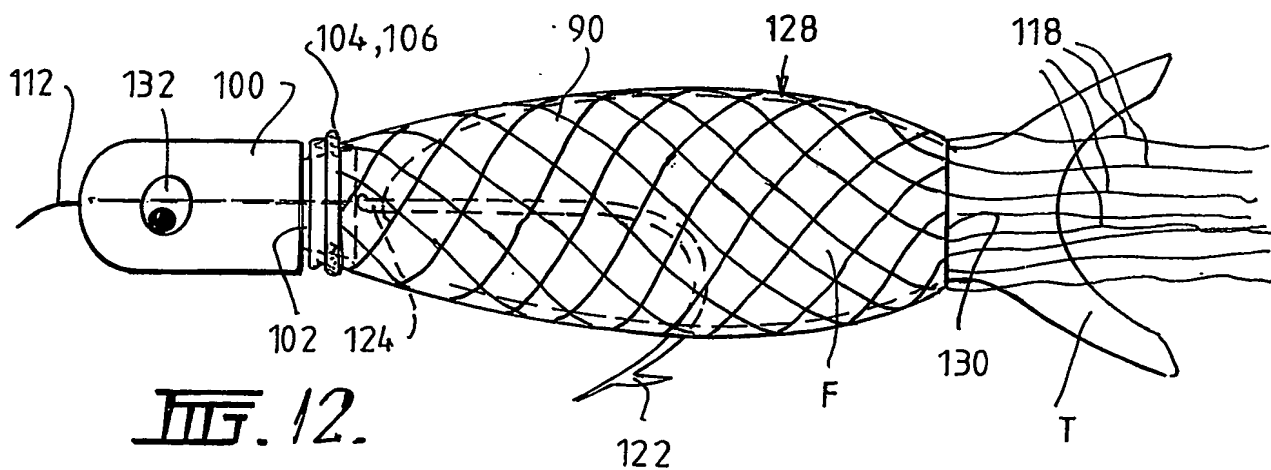
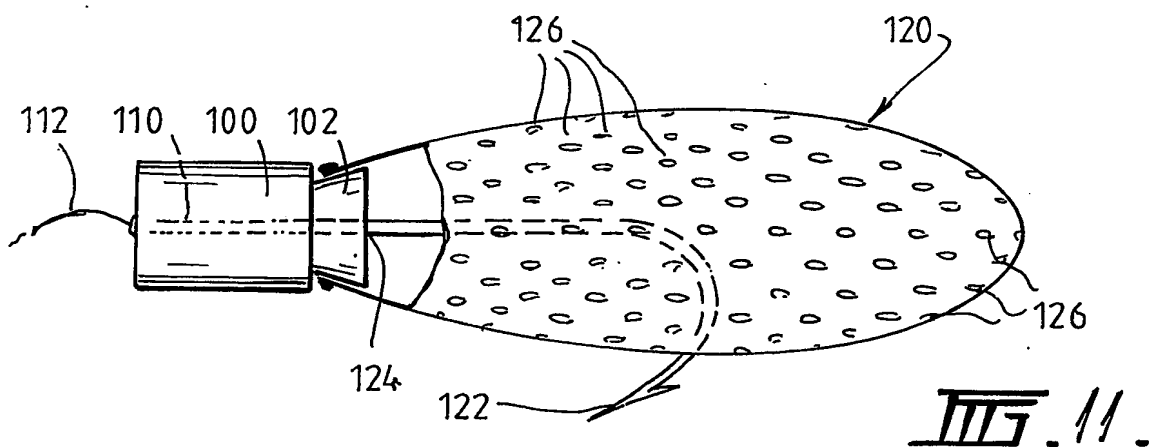
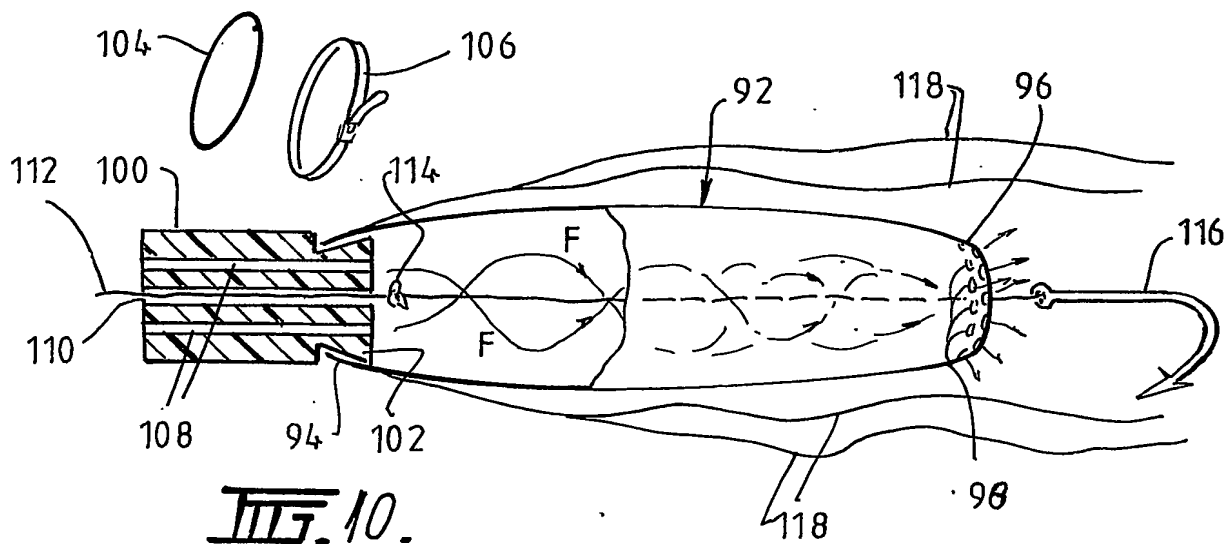
FIG. 8.

3/8

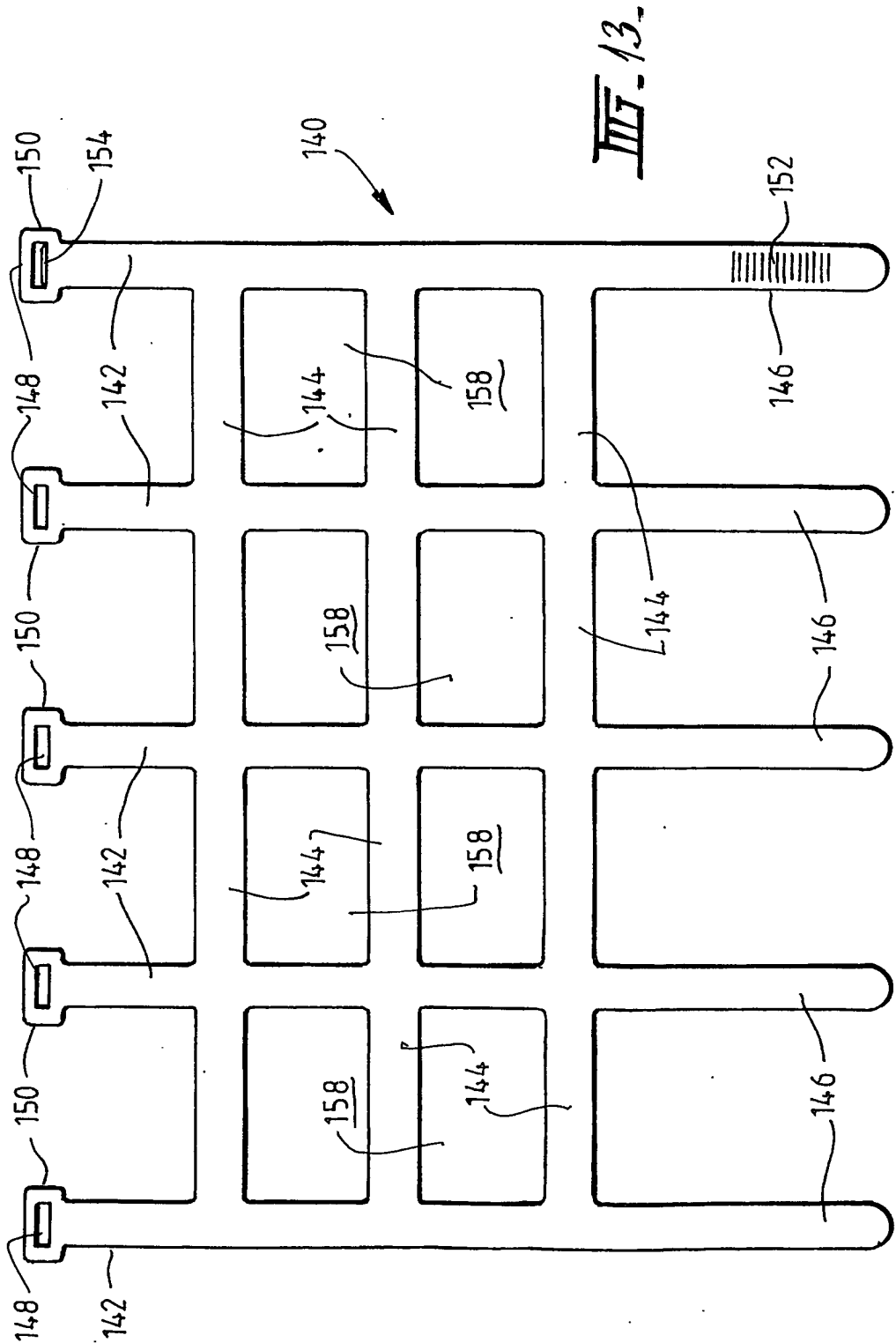


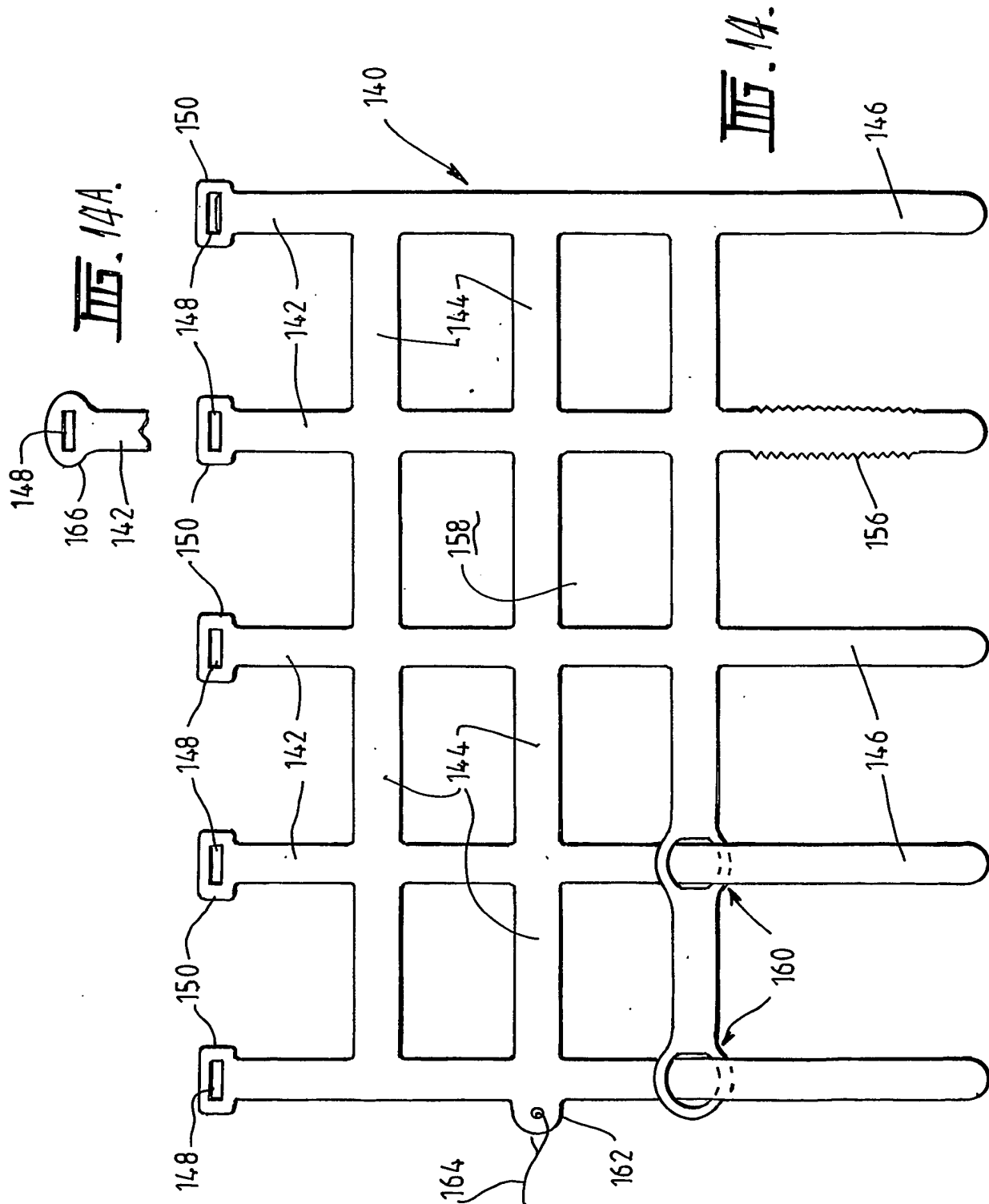
III.9.

4/8









7/8

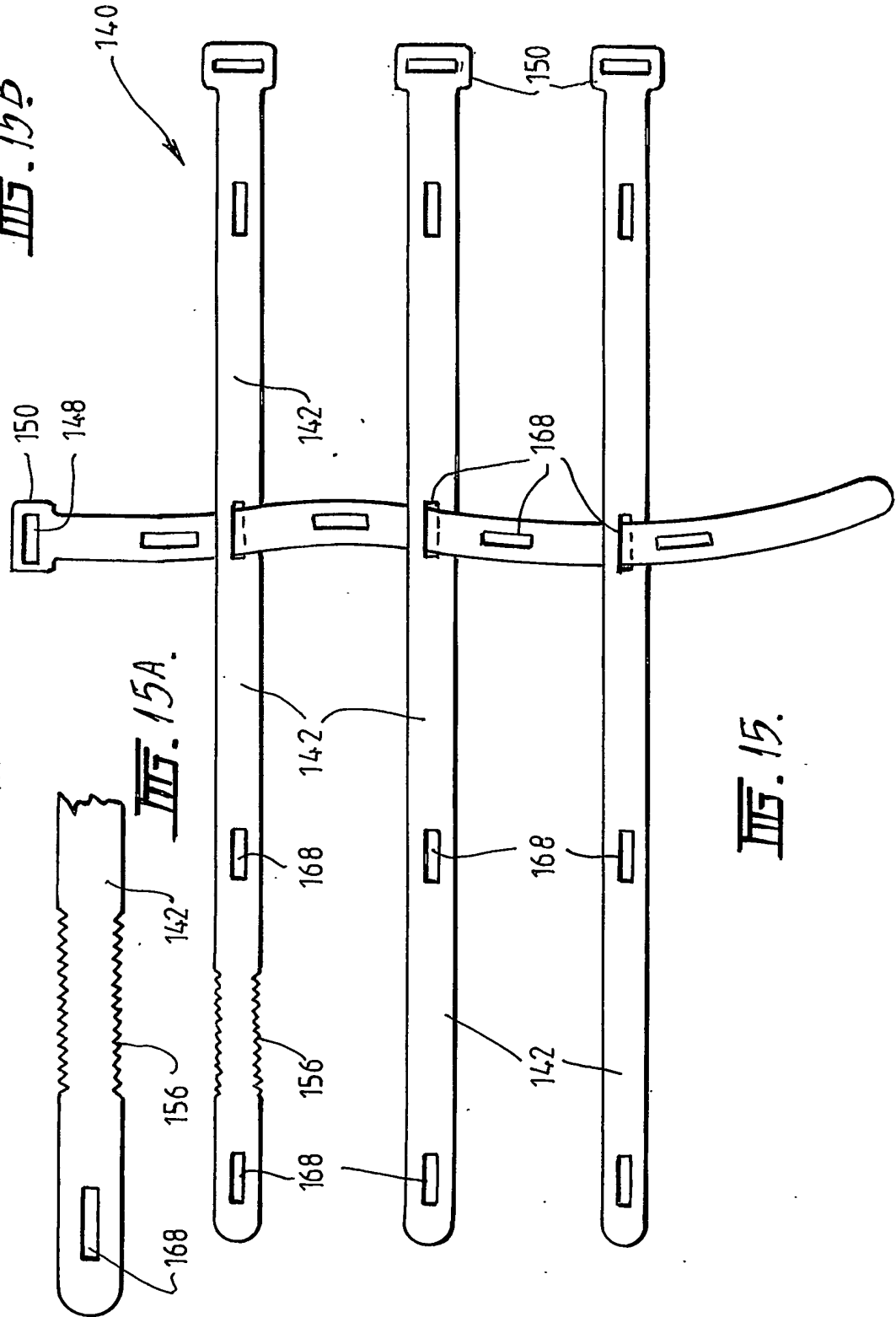
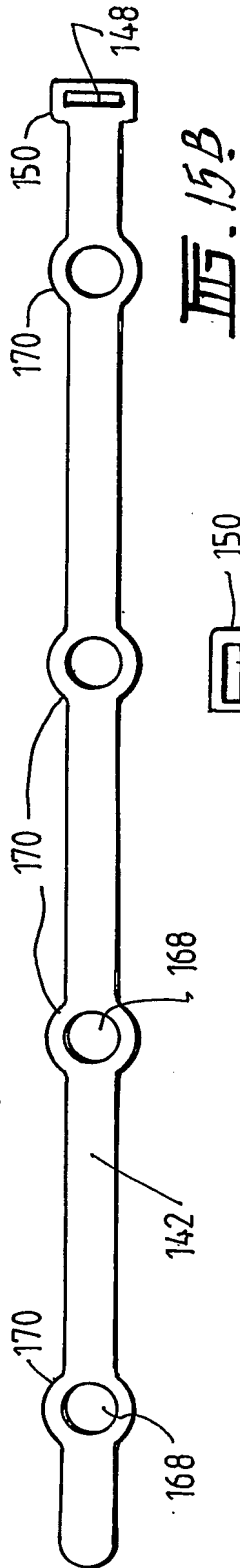
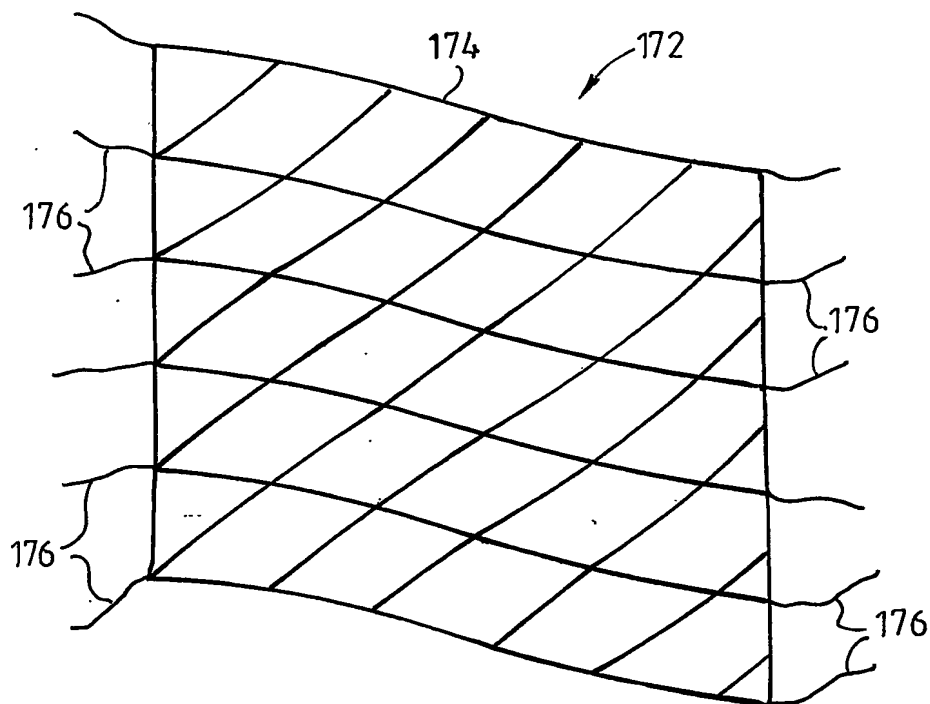
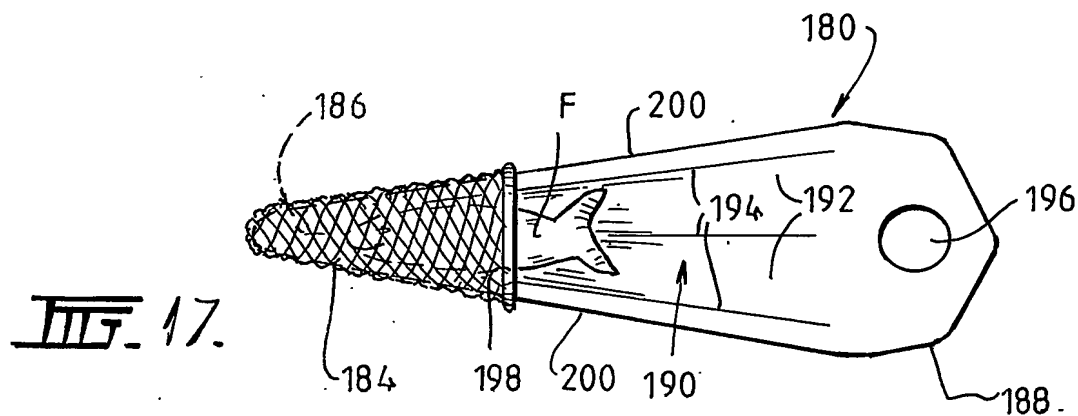


FIG. 15.

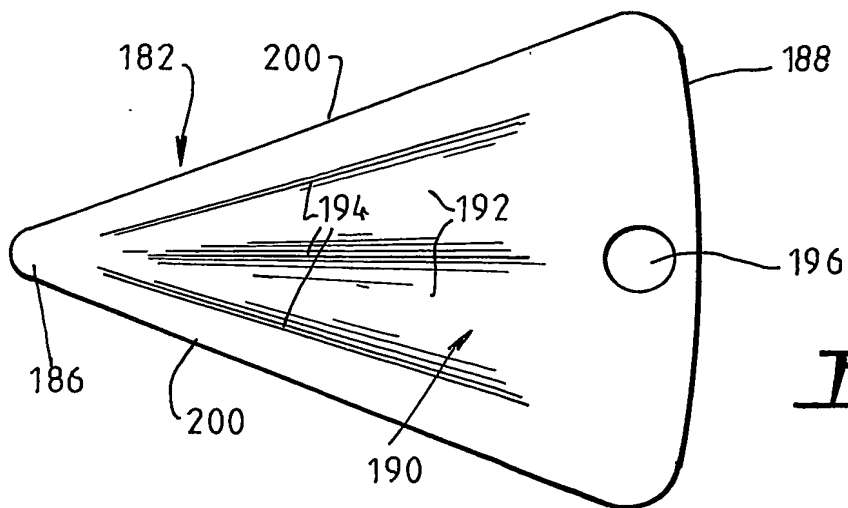
8/8



**FIG. 16.**



**FIG. 17.**



**FIG. 18.**

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU03/00226

<b>A. CLASSIFICATION OF SUBJECT MATTER</b>												
Int. Cl. <sup>7</sup> : A01K 83/06, 85/00, 97/00												
According to International Patent Classification (IPC) or to both national classification and IPC												
<b>B. FIELDS SEARCHED</b>												
Minimum documentation searched (classification system followed by classification symbols)												
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched AU: IPC A01K 83/06, 85/00, 97/00												
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) Derwent World Patent Index: IPC: A01K 83/-, 85/- 97/-and keywords: bait, fish, hold, held, disintegrate, bind, bound, integrity, reinforce, maintain, preserve, mesh, net, bag, receptacle, sleeve, rings, ties, jacket, apertures, perforations, openings, slits, pores												
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>												
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.										
X	US 2780021 A (FAGG) 5 February 1957 Whole document	1, 16, 17, 21, 25-30										
X	US 2828571 A (CAPLAN) 1 April 1958 Whole document	1-5, 8, 9, 16-18, 21-30										
X	US 3958357 A (FRANK) 25 May 1976 Column 1 line59 - column 2 line 10	1-4, 16, 17, 21, 25-30										
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C <input checked="" type="checkbox"/> See patent family annex												
<p>* Special categories of cited documents:</p> <table border="0"> <tr> <td>"A" document defining the general state of the art which is not considered to be of particular relevance</td> <td>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</td> </tr> <tr> <td>"E" earlier application or patent but published on or after the international filing date</td> <td>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</td> </tr> <tr> <td>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</td> <td>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</td> </tr> <tr> <td>"O" document referring to an oral disclosure, use, exhibition or other means</td> <td>"&amp;" document member of the same patent family</td> </tr> <tr> <td>"P" document published prior to the international filing date but later than the priority date claimed</td> <td></td> </tr> </table>			"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention	"E" earlier application or patent but published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone	"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art	"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family	"P" document published prior to the international filing date but later than the priority date claimed	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention											
"E" earlier application or patent but published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone											
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art											
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family											
"P" document published prior to the international filing date but later than the priority date claimed												
Date of the actual completion of the international search 13 March 2003		Date of mailing of the international search report 21 MAR 2003										
Name and mailing address of the ISA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustalia.gov.au Facsimile No. (02) 6285 3929		Authorized officer  D.R. LUM Telephone No : (02) 6283 2544										

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU03/00226

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4839982 A (WOOD) 20 June 1989 Figures 1 & 2	1, 21, 25-27
X	DE 3439735 A (BOHLMANN) 30 April 1986 Whole document	1

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU03/00226

## Box I Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos :  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2. ☐ Claims Nos :  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
  
3. ☐ Claims Nos :  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a)

## Box II Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

**See supplement sheet**

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims
2. ☒ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
  
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

**Supplemental Box**

(To be used when the space in any of Boxes I to VIII is not sufficient)

**Continuation of Box No: II**

The international application does not comply with the requirements of unity of invention because it does not relate to one invention or to a group of inventions so linked as to form a single general inventive concept. In coming to this conclusion the International Searching Authority has found that there are different inventions as follows:

1. Claims 1-15 is directed to a bait holding apparatus. It is considered that the deformable receptacle with a plurality of apertures comprises a first "special technical feature".
2. Claims 16-20 is directed to a bait holding apparatus. It is considered that the apparatus including a plurality of apertures that has a shape that enables it to be positioned to surround the bait in a close-facing relationship comprises a second "special technical feature".
3. Claims 21-27, 28-30 is directed to a bait holding apparatus. It is considered that the receptacle which has an opening for the introduction of a bait and a closure for the opening comprises the third "special technical feature".
4. Claims 31 - 38 are directed to a bait holding apparatus. It is considered that the interconnected ties comprises the fourth "special technical feature".
5. Claims 39 - 44 are directed to an applicator for a bait holding apparatus. It is considered that the features of claim 39 comprises the fifth "special technical feature".

Since the abovementioned groups of claims do not share any of the technical features identified, a "technical relationship" between the inventions, as defined in PCT rule 13.2 does not exist. Accordingly the international application does not relate to one invention or to a single inventive concept, a priori.



# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/AU03/00226

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report		Patent Family Member
US	2780021	NONE
US	2828571	NONE
US	3958357	NONE
US	4839982	NONE
DE	3439735	NONE
END OF ANNEX		